



IGC99T120T6RH

IGBT4 High Power Chip

FEATURES:

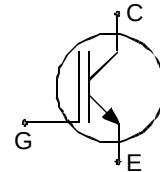
- 1200V Trench + Field Stop technology
- low $V_{CE(sat)}$
- soft turn off
- positive temperature coefficient
- easy paralleling

This chip is used for:

- medium / high power modules

Applications:

- medium / high power drives



Chip Type	V_{CE}	I_{Cn}	Die Size	Package
IGC99T120T6RH	1200V	100A	10.39 x 9.5 mm ²	sawn on foil

MECHANICAL PARAMETER

Raster size	10.39 x 9.5	mm ²
Emitter pad size (incl. gate pad)	7.987 x 8.923	
Gate pad size	1.31 x 0.811	
Area total / active	98.7 / 76.1	
Thickness	140	μm
Wafer size	150	mm
Flat position	90	grd
Max.possible chips per wafer	140	
Passivation frontside	Photoimide	
Pad metal	3200 nm AlSiCu	
Backside metal	Ni Ag –system suitable for epoxy and soft solder die bonding	
Die bond	Electrically conductive glue or solder	
Wire bond	Al, <500μm	
Reject ink dot size	Ø 0.65mm ; max 1.2mm	
Recommended storage environment	Store in original container, in dry nitrogen, < 6 month at an ambient temperature of 23°C	



IGC99T120T6RH

MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Collector-Emitter voltage, $T_j=25\text{ }^{\circ}\text{C}$	V_{CE}	1200	V
DC collector current, limited by T_{jmax}	I_C	¹⁾	A
Pulsed collector current, t_p limited by T_{jmax}	I_{Cpuls}	300	A
Gate-Emitter voltage	V_{GE}	± 20	V
Operating junction temperature	T_j	-40 ... +175	$^{\circ}\text{C}$
Short circuit data ²⁾ $V_{GE} = 15\text{V}$, $V_{CC} = 800\text{V}$, $T_{vj} = 150^{\circ}\text{C}$	tp	10	μs
Reverse bias safe operating area ²⁾ (RBSOA)	$I_{Cmax} = 200\text{A}$, $V_{CEmax} = 1200\text{V}$, $T_{vjmax} = 150^{\circ}\text{C}$		

¹⁾ depending on thermal properties of assembly

²⁾ not subject to production test - verified by design/characterization

STATIC CHARACTERISTICS (tested on wafer), $T_j=25\text{ }^{\circ}\text{C}$

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Collector-Emitter breakdown voltage	$V_{(BR)CES}$	$V_{GE}=0\text{V}$, $I_C = 3.8\text{ mA}$	1200			V
Collector-Emitter saturation voltage	$V_{CE(sat)}$	$V_{GE}=15\text{V}$, $I_C=100\text{A}$	1.5	1.7	2.0	
Gate-Emitter threshold voltage	$V_{GE(th)}$	$I_C=3.8\text{mA}$, $V_{GE}=V_{CE}$	5.0	5.8	6.5	
Zero gate voltage collector current	I_{CES}	$V_{CE}=1200\text{V}$, $V_{GE}=0\text{V}$			13	μA
Gate-Emitter leakage current	I_{GES}	$V_{CE}=0\text{V}$, $V_{GE}=20\text{V}$			600	nA
Integrated gate resistor	R_{Gint}			7.5		Ω

ELECTRICAL CHARACTERISTICS (not subject to production test - verified by design/characterization)

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Input capacitance	C_{iss}	$V_{CE}=25\text{V}$, $V_{GE}=0\text{V}$, $f=1\text{MHz}$		6150		pF
Output capacitance	C_{oss}			405		
Reverse transfer capacitance	C_{rss}			345		



IGC99T120T6RH

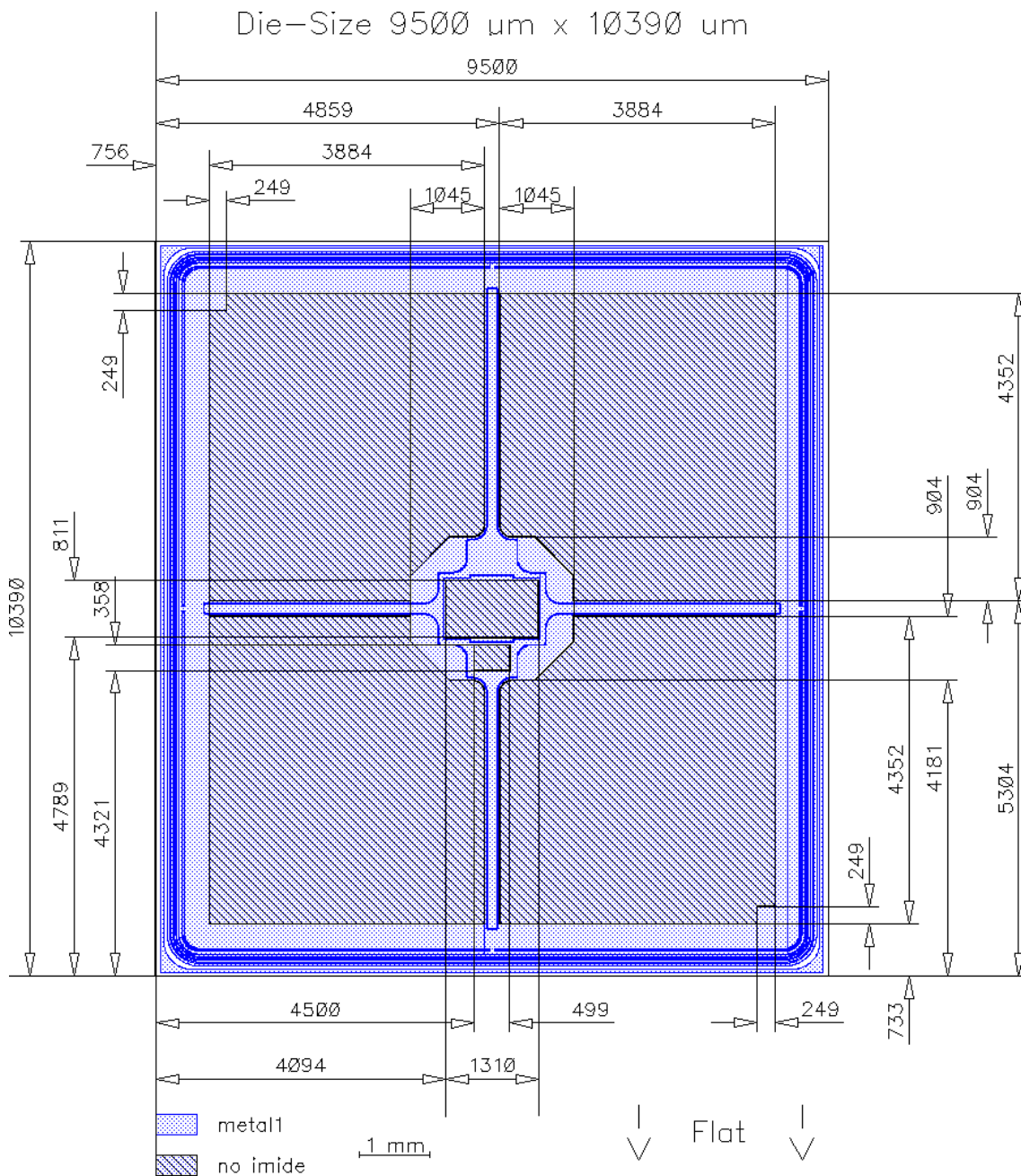
SWITCHING CHARACTERISTICS inductive load (not subject to production test - verified by design /characterization)

Parameter	Symbol	Conditions ¹⁾	Value			Unit
			min.	typ.	max.	
Turn-on delay time	$t_{d(on)}$	$T_j = 125^{\circ}\text{C}$ $V_{CC} = 600\text{V},$ $I_C = 10\text{0A},$ $V_{GE} = -15/15\text{V},$ $R_G = \text{---}\Omega$		tbd		ns
Rise time	t_r			tbd		
Turn-off delay time	$t_{d(off)}$			tbd		
Fall time	t_f			tbd		

¹⁾ values also influenced by parasitic L- and C- in measurement and package.

IGC99T120T6RH

CHIP DRAWING





IGC99T120T6RH

FURTHER ELECTRICAL CHARACTERISTICS

This chip data sheet refers to the device data sheet	tbd	
--	-----	--

DESCRIPTION

AQL 0,65 for visual inspection according to failure catalogue

Electrostatic Discharge Sensitive Device according to MIL-STD 883

Test-Normen Villach/Prüffeld

Published by
Infineon Technologies AG
81726 Munich, Germany
© Infineon Technologies AG 2007
All Rights Reserved

Attention please!

The information herein is given to describe certain components and shall not be considered as warranted characteristics.

Terms of delivery and rights to technical change reserved.

We hereby disclaim any and all warranties, including but not limited to warranties of non-infringement, regarding circuits, descriptions and charts stated herein.

Infineon Technologies is an approved CECC manufacturer.

Information

For further information on technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies Office in Germany or our Infineon Technologies Representatives world-wide (see address list).

Warnings

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies Office.

Infineon Technologies components may only be used in life-support devices or systems with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system, or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body, or to support and / or maintain and sustain and / or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.